Five-Year Review Summary Form

SITE IDENTIFICATION

Site name *(from WasteLAN)*: Seymour (Seymour Recycling Corp.)

EPA ID *(from WasteLAN)*: IND040313017

Region: 5	**State:** IN	**City/County:** Seymour, Jackson

SITE STATUS

NPL status: X Final __ Deleted __ Other (specify) _____

Remediation status (choose all that apply): __ Under Construction X Operating X Complete

Multiple OUs?* X YES __ NO	**Construction completion date:** 9/8/93

Has site been put into reuse? __ YES X NO

REVIEW STATUS

Lead agency: X EPA __ State __ Tribe __ Other Federal Agency _____

Author name: Jeff Gore

Author title: RPM	**Author affiliation:** USEPA, Region 5

Review period:** 10/29/01 to 3/29/02

Date(s) of site inspection: 10/22-10/25/01

Type of review:

X Post-SARA __ Pre-SARA __ NPL-Removal only
__ Non-NPL Remedial Action Site __ NPL State/Tribe-lead
__ Regional Discretion

Review number: __ 1 (first) X 2 (second) __ 3 (third) __ Other (specify) _____

Triggering action:

__ Actual RA Onsite Construction at OU #___ __ Actual RA Start at OU#___
__ Construction Completion X Previous Five-Year Review Report
__ Other (specify) _____

Triggering action date *(from WasteLAN)*: 3/27/97

Due date *(five years after triggering action date)*: 3/27/02

* ["OU" refers to operable unit.]

** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, cont'd.

Issues:

Summarize issues (see Chapter 3).

Recommendations and Follow-up Actions:

Summarize recommendations and follow-up actions (see Chapter 3).

Protectiveness Statement(s):

Include individual operable unit protectiveness statements. For sites that have reached construction completion and have more than one OU, include an additional and comprehensive protectiveness statement covering all of the remedies at the site (see Chapter 4).

Other Comments:

Make any other comments here.

SEYMOUR SUPERFUND SITE

SEYMOUR,
INDIANA

The completion of the current five-year review confirms that the Seymour Superfund Site remains protective of human health and the environment. The source area and groundwater remedies selected in the 1987 Seymour Site ROD have been implemented under the 1988 Consent Decree, and adjusted as appropriate. This is the second five-year review for the Seymour Site. The first five-year review was completed and signed in March 1997.

The soil vapor extraction system (VES) began being cycled off up to a year at a time in 1998. The VES cycling provides contaminant removal efficiency under current Site conditions while assuring protectiveness. The Site waste cap remains functional, operational and effective, and with the 1999 repairs and improvements, assures continued protectiveness.

The Site groundwater remedy remains protective. The groundwater pump and treatment system was shutdown in October 2001 after 12 years of use contingent on plume stability, since over 90 percent of the contamination had been removed from the groundwater. Residual groundwater contamination above the clean-up standards outlined in the 1997 ROD remains at the Site. Additional monitoring will occur during the initial and each five year contingency period to assure that the contaminant plume does not expand from its 2001 areal extent. The shutdown will be reviewed every five years to monitor contaminant data trends, to see if contaminant levels decrease due to natural processes. If it is found after a five year review period that the current groundwater remedy is not protective and the plume is expanding beyond its 2001 location, the pump and treatment system will be reinstated.

Seymour, Indiana
March 2002

I. Introduction

The United States Environmental Protection Agency (U.S. EPA) Region 5 has conducted a five-year review of the remedial actions implemented at the Seymour Superfund Site in Seymour, Indiana. The review was conducted between October 2001 and March 2002. This report documents the results of the five-year review. The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in the five-year review reports. In addition, five-year review reports identify issues found during the review, if any, and make recommendations to address them.

This review is required by statute. U.S. EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA 121(c), as amended, states:

> If a remedial action is selected that results in any hazardous substances, pollutants, or contaminants remaining at the site, the remedial action shall be reviewed no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP part 300.430(f)(4)(ii) of the Code of Federal Regulations (CFR) states:

> If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the second five-year review for the Seymour Site. The first five-year review report was completed and signed in March 1997. Due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure, this five-year review is required.

II. Site Chronology

Table 1 lists the chronology of events for the Seymour Superfund Site.

Table 1: Chronology of Site Events

Date	Event
1978	Initial discovery of problem
1980	Seymour Recycling Site placed under receivership by state court
1981	Proposed for NPL listing
1982	Surface cleanup removal start
1983	NPL final listing
1984	Surface cleanup removal complete
1985	Municipal water supply extension to 100 homes
1986	Remedial Investigation/FS complete
1986	Interim ROD signed
1987	Second ROD signed
1988	RD/RA consent decree
1993	Remedy construction completion
1997	First five-year review
1998	Vapor extraction system cycling begins
1999	Site landfill cap repaired
2001	Groundwater treatment plant shut-down and contingency

III. Background

A. Site History

The Seymour Superfund Site covers approximately 14 acres and is located two miles southwest of Seymour, Indiana (See figure). From 1970 to early 1980, the Seymour Recycling Corporation (SRC) processed, stored and incinerated chemical wastes at the Site. The Site was closed when SRC failed to follow a 1978 agreement with the State of Indiana to cease receiving wastes and institute better waste management practices. In 1980, a state court placed the Site under receivership. Later that year and in 1981 the U.S. Environmental Protection Agency (U.S. EPA) fenced the Site to restrict access, constructed dikes to control runoff from the Site, installed an on-site carbon unit to treat surface water, and sampled the contents of drums, tanks and soil. In 1982, U.S. EPA entered into an agreement with a small group of complying potentially

responsible parties to handle the "surface cleanup", or the cleanup considered to be of greatest risk to the public. These PRPs were free from future liability at the Site, after paying for and completing this cleanup.

The "surface cleanup" was conducted from December 1982 to January 1984. The cleanup involved removing all stored surface wastes--roughly 50,000 drums and 100 storage tanks--and taking them to off-site hazardous disposal areas. In addition, the top foot of contaminated soil was removed from about 75 percent of the Site area and transported to disposal sites. These soils contained high levels of numerous organic contaminants. Clean fill and clay was brought in to replace the removed soil, creating a protective cover.

Agreements in 1982 and 1983 with additional PRPs established a fund which allowed for the 1985 extension of Seymour's municipal water system to the nearby Snyde Acres subdivision which contained about 100 homes, and to a nearby farm.

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B. Remedial Planning Activities

Remedial planning began as the Seymour Site was proposed for the National Priorities List on October 22, 1981. The Site became a final NPL listing on September 9, 1983.

A remedial investigation was carried out from August 1983 to May 1986. The major results of the RI, and the conditions at the Seymour Site at that time found:

* A shallow and deep aquifer exist with a confining layer between them. The confining layer narrows and disappears as you move to the north and northwest direction. In some areas around the Site, groundwater in the shallow aquifer can be found less than 10 feet below the surface. Groundwater in the shallow aquifer flows to the north/northwest.

* The deep aquifer, located from about 55 to 70 feet below the surface, flows primarily to the south. The area immediately to the south of the Site contains no wells or streams which could provide an exposure pathway for site chemicals in the deep aquifer to contact humans or wildlife. However, there are deep wells located at Freeman Municipal Airport to the east of the Site.

* The shallow aquifer is highly contaminated with more than 35 different hazardous organic chemicals, including 1,2-dichloroethane, benzene, vinyl chloride and 1,1,1-trichloroethane. As of June 1985, the major portion of the contaminant plume extended 400 feet beyond the Site boundary. However, studies detected lower concentrations of organic chemicals as far as 1,100 feet downgradient of the Site boundary.

* Soil beneath the surface of the 14 acre site is heavily contaminated with the hazardous chemicals found on Site. Sediments in the nearby northwest drainage ditch are also contaminated but at much lower concentrations.

* Exposure to chemicals from the Site through air is unlikely in the short term unless the protective clay soil cover placed on the Site during the 1982-84 surface cleanup is disturbed.

U.S. EPA and the Indiana Department of Environmental Management (IDEM) prepared a Record of Decision (ROD) in September of 1986 that outlined an interim groundwater pump and treatment system for the Seymour Site. A second ROD was signed in September of 1987 which outlined the elements of a comprehensive cleanup at the Seymour Site. In December of 1988, U.S. EPA, IDEM, the City of Seymour and approximately 150 PRPs signed a Consent Decree outlining the Seymour Site remedial design/remedial action cleanup.

IV. Remedial Actions

A. Remedy Selection

The four basic components of the Seymour Site remedy selection involved design, construction and implementation of the following:

- Groundwater pump and treatment system with long-term monitoring.
- Vapor extraction system with long-term monitoring.
- Multi-media landfill cap with on-site contamination, buildings and debris buried beneath the cap.
- Bioremediation of landfill source area by land-farming nutrients into the soil.

Other elements of the Seymour Site remedy included the sealing of private groundwater wells in the nearby Snyde Acres residential area, restriction of access to and use of the Site with a security perimeter fence, and restriction of use of contaminated groundwater over the extent of the Site plume.

B. Remedy Implementation

. Groundwater Response Action - Operable Unit 1

Implementation of the Operable Unit 1 response action involved groundwater restoration at the Seymour Site. Design and construction of an interim groundwater pump and treatment system began in 1987 and was completed in 1989. A final pump and treatment system was completed in February of 1991.

The groundwater contamination at the Seymour Site consisted of a variety of chemicals, but the plume itself is being defined by the constituent 1-4 dioxane, which extended approximately 3/4

mile northwest from the Site boundary. Tetrahydrofuran extended about 1/4 of a mile, and chloroethane, vinyl chloride and benzene a few hundred feet from the Site. This information was found out by additional groundwater sampling and placement of monitoring wells during the remedial design of the project.

Two extraction wells were constructed about 300 and 1000 feet from the northern Site boundary. The combined pumping rate of the two extraction wells historically was 140 gallons per minute, but the system has been adjusted as necessary by the plant operator.

Water from the two extraction wells runs through the Site pre-treatment plant. The plant process involves an iron reaction and settling system, air stripping, and additional filtering which includes activated carbon. The processed groundwater then is pumped to the City of Seymour's wastewater treatment works plant.

Source Area Response Action - Operable Unit 2

Implementation of the Operable Unit 2 response action involved soil restoration at the Site. The excavation of northwest ditch, construction of the vapor extraction system (VES) and multi-layer cap, and bioremediation of soils began in September of 1989 and were completed in May of 1991. The vapor extraction system at the Seymour Site is unique in that the laterals in the system run horizontal instead of vertical. The vapor extraction system itself lies underneath the length of the multi-layer site cap. The laterals are connected to headers at the north and south end of the cap. A vacuum pump system connected to the north header draws air from vertical inlets on the south side header, and volatile laden air from the contaminated area flows through the system to an exhaust.

A multi-layer cap was built in order to cover site contamination, building debris and drummed drill-cuttings. The cap also provides a barrier for future surface-water run-on, which in turn reduces underground leaching. The cap's seven layers consist of the following materials: the layer at the surface is a two foot thick seeded soil layer; the second layer is a geotextile filter fabric; the third layer is for drainage, consisting of 12 inches of sand; the fourth layer consists of a high density polyethylene liner; the fifth layer consists of four successive 6-inch-thick compacted clay/till layers; the sixth layer is another geotextile filter; and the final layer just above the contaminated soil consists of compacted clean fill.

Bioremediation was utilized before the multi-layer cap was constructed at the Seymour Site in 1990 and 1991. A solution of nitrogen, phosphorous, potassium and sulfur was added to the soil to help break down the contaminants biologically. The nutrients were land-farmed using a tractor, plow and storage tank, injecting the mixture 12 to 24 inches below grade in the soils. Because the multi-layer cap was constructed over the source area, the bioremediation can not be monitored over time by utilizing soil sampling activities.

C. Systems Operations

Groundwater Response Update

The interim pump and treatment system for the Seymour Site began operating in 1989, and the final system began operating in 1991. The final pump and treatment system included extraction wells about 300 and 1000 feet from the northern Site boundary. Over time, the extraction wells flow rates tended to decrease due to clogging in the well screens and aquifer formations. As a result, the extraction well 1000 feet from the northern Site boundary was replaced in 1993 and located near the original well location. A third extraction well was added in 1995 and placed approximately 400 feet from the Site boundary. In 2001, the three groundwater extraction wells typically produced a flow rate of approximately 100 gallons per minute through the Site groundwater pre-treatment plant.

Hydrogen peroxide and hydrochloric acid pre-treatment plant processes were added in 1995 to control iron precipitation and biomass buildup in the Site pre-treatment plant air stripper and other plant components. These additions improved the efficiency of the pre-treatment plant as well as reduced the amount of plant maintenance required.

A document proposing the shut down of the groundwater pump & treatment plant was approved by U.S. EPA and IDEM in January 2001. The document approval was based on the reasoning that the groundwater extraction system was no longer efficient in removing the lower levels of groundwater contaminants still above clean-up standards, and in containing the plume after 12 years of pump and treatment. The approval for shutdown required increased groundwater monitoring, and a contingency to re-start the groundwater treatment system if the groundwater plume expanded from its position at system shutdown. The groundwater extraction system shutdown was completed between October and December 2001. The plant re-start contingency is to be reviewed every five years until the groundwater clean-up standards outlined in the ROD are met.

Source Area Response Update

The vapor extraction system operated continuously, except for maintenance, until the beginning of 1998. The flow rate through the system has ranged from less than 10 cubic feet per minute (cfm) to up to 100 cfm, depending on factors such as groundwater level. The VES removed most of the contaminant mass during the first year of operation with over 20,000 pounds of volatile organic compounds being vented. The system has recently been reaching asymptotic levels of approximately 34,000 pounds being removed.

The vapor extraction system began being cycled to operate intermittently as needed in 1998. The system began to be turned off for up to a year to allow volatile compounds to build up or be removed naturally. The VES has been shutdown since October 2001.

A major repair of the Site landfill cap took place in 1999 to repair erosion and improve drainage. A cutoff trench was installed around the perimeter of the surface and directed to drainage trenches. In addition, modifications were made to the Site fencing to reduce entry of burrowing

animals onto the cap area.

V. Progress Since Last Five-Year Review

This is the second five-year review for the Seymour Site. The first five-year review report was completed and signed in March 1997. Recommendations during the 1997 five-year review involved the continued operation of the soil and groundwater remedies at the Site. There were no significant deficiencies or compliance issues found during the 1997 five-year review.

The vapor extraction system began to be cycled in 1998, the Site waste cap was repaired in 1999, and the groundwater pump & treatment system was shutdown in 2001. These Site remedy adjustments which took place during this five-year review period are discussed in Section VII (Five Year Review Findings) of this report.

VI. Five Year Review Process

The Seymour Site five year review was prepared by Jeff Gore, U.S. EPA Remedial Project Manager for the Site. Prabhakar Kasarabada, State Project Manager with the Indiana Department of Environmental Management (IDEM) also assisted in the review. The five year review consisted of a Site inspection and review of relevant documents. The completed report will be available in the Site information repository for public view.

Community relations ongoing at the Seymour Site include responding to local resident concerns over progress of the operation and maintenance of the remedy. A local plant manager is available to provide residents with a Site tour when appropriate. Public availability sessions are held when necessary to inform the community of significant events during the continuing Site remedy. Public notice is scheduled for an availability session to outline the progress at the Site and the five-year review in the summer or fall of 2002.

VII. Five Year Review Findings

A. Site Visit

The Seymour Site has been visited a number of times by the remedial project manager since the previous five-year review in 1997. The most recent visit was perfomed between October 22 and 25, 2001, in order to inspect the Site and oversee the shutdown of the groundwater treatment system. Prabhakar Kasarabada of IDEM, and Jim Kilby, Harv Schulte and Joe Moser of the Seymour private party group were also present during the October visit.

The access perimeter Site security fence was intact. The landfill cap showed no excessive wear, extensive erosion gullies or surface breaks. The 1999 landfill cap repair seemed to be effective in maintaining surface drainage and runoff. The VES including blower house was not operating,

but was found in good condition. The groundwater monitoring wells were found to be painted, capped and locked. The monitoring wells, bollards, above ground piping and extraction well housing were painted during 2001. Monitoring well locks have been replaced as needed during ongoing groundwater sampling events.

Groundwater treatment system shutdown work taking place during the October 2001 Site visit included the removal of sand from the plant sand filter, water blasting of the plant components to prepare for painting, and electrical work to make lighting and wiring adjustments. Completed shutdown work included plant flushing and draining, air stripper cleaning, activated carbon removal and casing cleaning, and extraction well pump removal. Shutdown items completed after the October 2001 visit included plant component painting, valve lubrication and the installation of a new sign.

B. Risk Information Review

The following standards were identified as applicable or relevant and appropriate requirements (ARARs) in the ROD for the Site and were reviewed for changes that could affect protectiveness:

- Safe Drinking Water Act Maximum Contaminant Levels (MCLs);

- State of Indiana Water Quality Standards;

-Resource Conservation and Recovery Act (RCRA) hazardous waste disposing and storage regulations;

- Clean Water Act, State of Indiana and City of Seymour Public Works treated groundwater discharge standards.

C. Data Review

Groundwater monitoring has been performed historically at the Seymour Site to determine the trend of groundwater contaminants at the Site. Groundwater sampling through May 2001 showed the following:

- It is estimated that over 90% of the groundwater contamination at the Seymour Site has been removed as of 2001.

- The compounds 1-4 dioxane, tetrahydrofuran and chloroethane define the groundwater plume, with 1-4 dioxane extending the furthest.

- The areal extent of the 1-4 dioxane and tetrahydrofuran plumes is stable to decreasing, when compared to data four years earlier. The extent of the chloroethane is similar to that of four years earlier.

Based on the fact that a pump and treatment system has been active since 1989 at the Seymour Site, the majority of the groundwater contamination had been removed and the contaminant concentration levels seem to have reached asymptotic levels, it was proposed and approved that the Seymour pump and treatment system be shutdown. The groundwater system was no longer seen as efficient in removing significant contamination or containing the plume. The shutdown completed in the fall of 2001 requires additional quarterly and semi-annual groundwater monitoring. The shutdown will be reviewed after each five year period, and is contingent on the plume remaining stable or decreasing in areal extent. If the plume is not stable and expands from its location at shutdown (after any of each five year review period), the treatment plant pump and treatment system will be re-started to contain the groundwater plume.

Monitoring of the soil VES has been performed historically to determine contaminant trends in the soil underneath the Site cap. Vapor emission stack sampling through 2001 indicated the following:

- The vapor extraction system began operating continuously in 1992 and removed most of the soil contamination in the first two years. Approximately 20,000 pounds of volatiles were removed in the first year of operation.

- The VES ran continuously, except for maintenance, until the beginning of 1998.

- The VES began to be cycled off up to a year in 1998 because removal had been at asymptotic levels for years.

- Volatile emissions experienced a spike in 1999, possibly due to unusually low groundwater levels, and then returned to asymptotic levels with approximately 34,000 pounds removed.

Based on these trends, it was determined that the VES would continue to be cycled on and off as needed. The VES was recently shutdown in October 2001 and is scheduled to remain inactive until October 2002.

VIII. Assessment

The following questions address the protection of human health and the environment by the remedy at the Seymour Superfund Site.

Question A: Is the remedy functioning as intended by the decision documents?

- **Implementation of Institutional Controls and Other Measures:** The 1987 ROD required institutional controls implementing deed and access restrictions to prevent development of the Site, and to assure the integrity of the remedial action. These controls and restrictions remain in place with the City of Seymour to

prevent property access and contaminated groundwater use associated with the remedial action.

- **Remedial Action Performance:** It is estimated that over 90% of the contamination has been removed at the Seymour Site. Approximately 34,000 pounds of contaminants have been removed from the VES, 9000 pounds removed by the groundwater treatment system, and over 20,000 pounds removed by natural processes. The VES and groundwater treatment plant removal levels have reached asymptotic levels. As a result, the VES system has been cycled to operate intermittently since 1998. The groundwater extraction system was also shut-down in October 2001 to allow for the residual groundwater contamination to be remediated by natural processes. An expanded sampling program and an ongoing five year contingency review will now take place to assure that the groundwater plume remains stable or is contracting. If the contingency review finds that the groundwater plume is expanding, the groundwater extraction system will be re-started.

- **System Operations/O&M:** System operations have included groundwater and soil vapor monitoring, and various system and plant maintenance in order to keep the integrity of the remedy intact. More recently as remedy removal efficiency declined, the VES began to be cycled off and on in 1998, and the groundwater treatment plant was shut down for an initial five year review period in October 2001.

- **Cost of System Operations/O&M:** Long-term operation and maintenance costs at the Seymour Site have recently averaged between $200,000 and $300,000 per year. Items such as the 1999 cap repair and the 2001 groundwater treatment system shut-down have raised operation and maintenance costs above those levels. Annual costs at the Site should decrease in the future, as the cost savings from the shut-down of the groundwater treatment system should more than offset the increase in costs due to additional groundwater sampling required.

- **Opportunities for Optimization:** The 1998 cycling of the soil VES and the 2001 shut-down of the groundwater pump and treatment system have been implemented in order to improve the performance of Site remedy and reduce operation and maintenance costs. The VES cycling is reviewed annually and the shut-down of the groundwater treatment system will be reviewed in 2006.

- **Early Indicators of Potential Remedy Issues:** A spike in volatile emissions occurred in the VES in 1999 after years of low removal rates. This took place over a year after the VES began to be cycled in 1998. At this time, it is believed that the volatile spike was due to an unusual two to three foot drop in the groundwater table under the VES and Site cap in 1999, and not due to the cycling

of the VES. This water table drop was noted during ongoing water level measurements taken at the Site. Since the groundwater pump and treatment system was just shut-down in October 2001, it is too early to determine any potential remedy issues with plume containment and contaminant levels in the groundwater remedy.

Question B: Are the assumptions used at the time of remedy selection still valid?

- **Changes in Standards and To Be Considered:** Neither federal MCLs nor State groundwater standards for Site related contaminants have changed since the ROD and last five-year review in 1997. RCRA regulations regarding hazardous waste storage at the Seymour Site remain unchanged.

- **Changes in Exposure Pathways:** No new exposure pathways have been discovered at the Seymour Site. Shut-down of the groundwater pump and treatment system in 2001 has eliminated the Site plant discharge to the Seymour POTW, and the air stripper atmospheric discharge. VES cycling since 1998 provides intermittent use of the vacuum blower and venting to the atmosphere.

- **Changes in Toxicity and Other Contaminant Characteristics:** Toxicity and other factors for contaminants of concern have not changed.

- **Changes in Risk Assessment Methodologies:** Any additions or changes in risk assessment methodologies used at the Site since the ROD do not call into question the protectiveness of the remedy.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

The information of concern regarding the remedy will be VES emission monitoring to assure that cycling of the VES remains protective, and groundwater monitoring to assure shut-down of the pump and treatment system remains protectective.

IX. Issues

Issues that were discovered during the five-year review process and the Seymour Site inspection are noted in Table 2.

Table 2: Identified Issues

Five-Year Review Issues	Currently Affects Protectiveness (Y/N)

A volatile spike occurred in the VES in 1999 after years at asymptotic levels.	N
The VES system has been cycled off for up to a year since the beginning of 1988	N
The groundwater pump and treatment system was shut-down in 2001 under increased monitoring and a startup contingency after each five years.	N
An explanation of significant differences document related to pump & treatment system shut-down needs to be added to the Site file.	N
Issues Noted at Site Inspection	
Corrections needed to be made to a sign to be located on the Site entrance gate.	N
The phone system needed to be adjusted to assure voice mail was available if not answered.	N
Keys needed to be made available to agency staff since the plant operator was no longer available after shutdown	N

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X. Recommendations and Follow-up Actions

The following recommendations and follow-up actions address the issues which were identified during the five-year review and Site inspection:

1) Future monitoring data of the VES and water level measurements should be analyzed to confirm the assumption that the 1999 spike in volatile emissions was a result of an unusual two to three foot drop in the water table under the VES and Site cap.

2) The VES cycling should be analyzed and adjusted if needed to maximize the contaminant removal efficiency of the system.

3) The additional quarterly and semiannual groundwater data related to the shutdown of the groundwater treatment system should be discussed after being reported, to assure that the groundwater remedy remains protective. This will also improve communication before the five-year contingency review is required.

4) An explanation of significant differences document should be prepared, finalized and placed in the Seymour Site file to detail the groundwater treatment plant shutdown.

The following issues noted during the Site inspection period have been recommended, and have been corrected or are in the process of being corrected.

5) Corrections to the sign located on the Site entrance gate.

6) Adjustment to the Site phone system to assure voice mail availability if the phone is not answered.

7) Site access and plant keys presented to agency staff after plant shutdown.

Table 3 : Recommendations and Follow-up Actions

Five-Year Review Issues	Recommendations Follow-up Actions	Party Responsible	Oversight Agency	Mile-stone Date	Follow-up Action: Affects Protective ness (Y/N)
1999 Volatile spike in VES emissions	Discussion of ongoing VES stack & Site monitoing	Seymour RP Group	EPA/IDEM	Annual review	N
Cycling of VES ongoing at Site	Discussion of ongoing VES stack & Site monitoring	Seymour RP Group	EPA/IDEM	Annual review	N
Groundwater treatment system shutdown	Discussion of increased GW monitoring	Seymour RP Group	EPA/IDEM	Semi-annual review	N
Explanation of significant differences	Write an ESD document for the Site file	USEPA	IDEM	Sept., 2002	N
Site Inspection Issues					
Site entrance gate sign	Make corrections	Seymour RP Group	EPA/IDEM	Complet e	N

Adjust Site phone system	Assure voice mail availability	Seymour RP Group	EPA/IDEM	ASAP	N
Site access & plant keys	Provide to agency staff	Seymour RP Group	EPA/IDEM	Complete	N

XI. Protectiveness Statements

The completion of the current five-year review confirms that the Seymour Superfund Site remains protective of human health and the environment. The source area and groundwater remedies selected in the 1987 Seymour Site ROD have been implemented under the 1988 Consent Decree, and adjusted as appropriate. The Site cap remains functional, operational and effective, and with 1999 trench and drainage improvements, assures continued protectiveness. The soil VES began being cycled off up to a year at a time in 1998. The VES cycling provides contaminant removal efficiency under current Site conditions while assuring protectiveness.

The Site groundwater pump and treatment system was shutdown in October 2001 after 12 years of use contingent on plume stability, since over 90 percent of the contamination had been removed from the groundwater. The groundwater remedy remains protective. Residual groundwater contamination above the clean-up standards outlined in the 1997 ROD remains at the Site. Additional monitoring will occur during the initial and each five year contingency period to assure that the contaminant plume does not expand from its 2001 areal extent. The shutdown will be reviewed every five years to monitor contaminant data trends, to see if contaminant levels decrease due to natural processes. If it is found after a five year review period that the current groundwater remedy is not protective and the plume is expanding beyond its 2001 location, the pump and treatment system will be reinstated.

XII. Next Review

The Seymour Superfund Site is a statutory site that requires ongoing five-year reviews. The next review will be scheduled to be completed by March 31, 2007. The completion date of the current review is the date of signature shown on the cover attached to the front of this report.

FIVE-YEAR REVIEW REPORT
LIST OF DOCUMENTS REVIEWED
MARCH, 2002

SEYMOUR SUPERFUND SITE

SEYMOUR,
INDIANA

1) Five-Year Review Report, Seymour Site, 3/27/97.

2) Preliminary Close-Out Report, Seymour Site, 9/8/93.

3) Consent Decree, Seymour Site, December, 1988.

4) Record of Decision, Seymour Site, September, 1987.

5) Seymour Site file, and operation & maintenance documents.